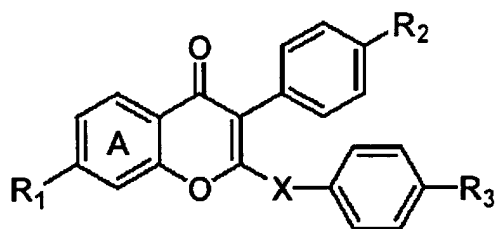


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A compound of formula A:

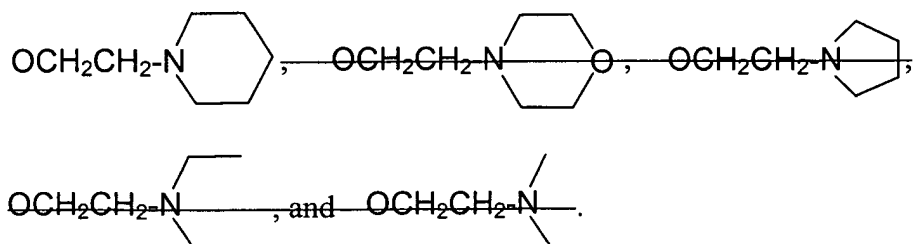


wherein

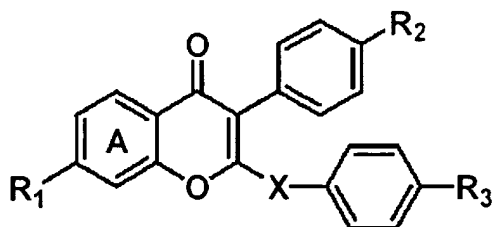
X is selected from the group consisting of O, N, S, SO, and SO₂;

R₁ and R₂ can be the same or different and are selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, OCH₂C₆H₅, NH₂, NHCH₃, N(CH₃)₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, NO₂, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃, OCOCH₃, OCOC(CH₃)₃, and OCOCH₂COOH;

~~R₃ is selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, NH₂, NHCH₃, N(CH₃)₂, NO₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃;~~



Claim 2 (currently amended): ~~The compound of claim 1, wherein~~ A compound of formula A:



wherein

X is selected from S, N, and O;

~~R₁ is selected from OH, OCH₃, and OC₆H₅;~~

~~R₂ is selected from H, OH, CH₃, and OCH₃; and~~

R₁ and R₂ can be the same or different and are selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, OCH₂C₆H₅, NH₂, NHCH₃, N(CH₃)₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, NO₂, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃, OCOCH₃, OCOC(CH₃)₃, and OCOCH₂COOH; and

~~R₃ is selected from OH and 2-(1-piperidiny)ethoxy.~~

Claim 3 (original): The compound of claim 2, wherein X is S, R₁ is OH, R₂ is OCH₃, and R₃ is 2-(1-piperidiny)ethoxy.

Claims 4 and 5 (canceled)

Claim 6 (original): The compound of claim 2, wherein X is S, R₁ is OC₆H₅, R₂ is OCH₃, and R₃ is 2-(1-piperidiny)ethoxy.

Claim 7 (original): The compound of claim 2, wherein X is O, R₁ is OC₆H₅, R₂ is OCH₃, and R₃ is 2-(1-piperidiny)ethoxy.

Claim 8 (original): The compound of claim 2, wherein X is O, R₁ is OH, R₂ is OCH₃, and R₃ is 2-(1-piperidiny)ethoxy.

Claim 9 (original): A one-pot method for preparing a 2-(alkylthio)isoflavone comprising the steps of:

- a. providing a mixture of a deoxybenzoin, carbon disulfide, alkyl halide, and tetrabutylammonium hydrogensulfate;
- b. adding aqueous sodium hydroxide to the mixture while stirring;
- c. reacting the mixture until the 2-(alkylthio)isoflavone is formed.

Claim 10 (original): The method of claim 9 wherein the mixture is allowed to stir for about 3 to about 7 hours after the addition of the sodium hydroxide.

Claim 11 (original): The method of claim 9 further comprising the step of separating the 2-(alkylthio)isoflavone from the reaction mixture.

Claim 12 (original): The method of claim 11 further comprising the step of purifying the 2-(alkylthio)isoflavone compound.

Claim 13 (original): A method of preparing a 2-heterosubstituted 3-aryl-4H-benzopyran-4-one compound comprising the steps of:

- a. selecting a 2-(alkylthio)isoflavone;
- b. optionally protecting potentially reactive groups on the 2-(alkylthio)isoflavone;
- c. oxidizing the alkylthio group to a alkylsulfonyl group; and
- d. substituting the alkylsulfonyl group with a heteroalkyl or heteroaryl group to form the 2-heterosubstituted 3-aryl-4H-benzopyran-4-one compound.

Claim 14 (original): The method of claim 13 wherein the oxidation step is carried out using *m*CPBA in a polar aprotic solvent under reflux conditions.

Claim 15 (original): The method of claim 15 wherein the polar aprotic solvent is CH₂Cl₂.

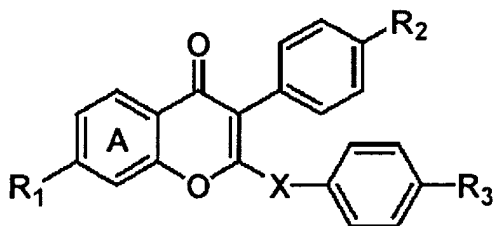
Claim 16 (original): The method of claim 13 wherein alkylsulfonyl group is substituted with a thioaryl group.

Claim 17 (original): The method of claim 16 further comprising the step of substituting the thioaryl group with an ethylpiperidinyl group to form a 4-[2-(1-piperidinyl)ethoxy]thiophenyl group at the 2-position of the 2-heterosubstituted 3-aryl-4H-benzopyran-4-one compound.

Claim 18 (original): The method of claim 17 further comprising the step of deprotecting the 2-heterosubstituted 3-aryl-4H-benzopyran-4-one.

Claim 19 (original): The method of claim 13 further comprising the step of deprotecting the 2-heterosubstituted 3-aryl-4H-benzopyran-4-one.

Claim 20 (currently amended): A method for treating, inhibiting, or delaying the onset of a cancer in a subject in need of such treatment; the method comprising administering a therapeutically effective amount of compound A:

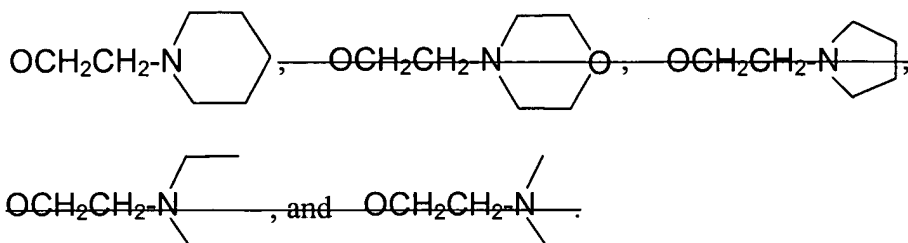


wherein

X is selected from the group consisting of O, N, S, SO, and SO₂;

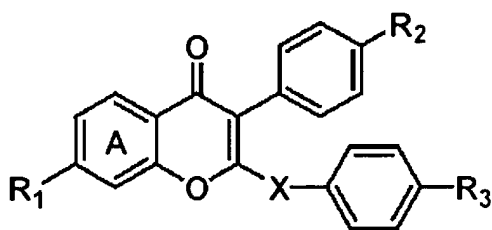
R₁ and R₂ can be the same or different and are selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, OCH₂C₆H₅, NH₂, NHCH₃, N(CH₃)₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, NO₂, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃, OCOCH₃, OCOC(CH₃)₃, and OCOCH₂COOH; and

~~R₃ is selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, NH₂, NHCH₃, N(CH₃)₂, NO₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃,~~



to the subject in need of such treatment.

Claim 21 (currently amended): The method of claim 20 wherein the cancer is breast cancer A method for treating, inhibiting, or delaying the onset of a breast cancer in a subject in need of such treatment; the method comprising administering a therapeutically effective amount of compound A:



wherein

X is selected from the group consisting of O, N, S, SO, and SO₂;

R₁ and R₂ can be the same or different and are selected from the group consisting of H, OH, OCH₃, OCH₂CH₃, OCH₂C₆H₅, NH₂, NHCH₃, N(CH₃)₂, CN, CH₃, CH₂CH₃, CH₂CH₂CH₃, CH(CH₃)₂, C(CH₃)₃, NO₂, F, Cl, Br, CF₃, SH, SCH₃, SCH₂CH₃, OCOCH₃, OCOC(CH₃)₃, and OCOCH₂COOH; and

R₃ is 2-(1-piperidiny)ethoxy

to the subject in need of such treatment.

Claim 22 (currently amended): The method of claim ~~20~~ 21 wherein the cancer is hormone-dependent breast cancer.

Claim 23 (canceled)

Claim 24 (new): The compound of claim 2 wherein

X is selected from S and O;

R₁ is selected from OH, OCH₃, and OC₆H₅;

R₂ is selected from H, OH, CH₃, and OCH₃; and

R₃ is 2-(1-piperidinyloxy).